

# Datasheet

MODEL NAME	CRI	CCT	SEC CODE
LT-VB24F_G2	80	3000K	SI-B8V481B20US
		3500K	SI-B8U481B20US
		4000K	SI-B8T481B20US
		5000K	SI-B8R481B20US

SAMSUNG				CUSTOMER
DEVELOP.	PRODUCT PLANNING	QA(DQA)	SALES	

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LED Module

# LT-VB24F GEN2



## Table of Contents

1.	Product Code Information	-----	3
2.	Characteristics	-----	4
3.	Structure and Assembly	-----	7
4.	Certification and Declaration	-----	8
5.	Label Structure	-----	9
6.	Packing Structure	-----	11
7.	Precautions in Handling & Use	-----	12
APPENDIX			
1.	Applicable Solid Wires	-----	14

## 1. Product Code Information

Nominal CCT (K)	Product Code
3000	SI-B8V481B20US
3500	SI-B8U481B20US
4000	SI-B8T481B20US
5000	SI-B8R481B20US

## 2. Characteristics (If=1080mA, $t_p=50^\circ\text{C}$ )

### a) Basic Information

Item	Rating	Unit	Remark
Rated Lifetime	>50,000	hour	L70B50
Ingress Protection (IP)	no rating	-	
Ambient / Operating Temperature ( $t_{amb}$ )	-20 ~ +50	$^\circ\text{C}$	
Storage Temperature	-30 ~ +80	$^\circ\text{C}$	

### b) Electro-Optical Characteristics

Item	Nom. CCT (K)	Rating			Unit	Remark
		Min	Typ.	Max		
Luminous Flux ( $\Phi_v$ )	3000	7725	8350	-	lm	$I_f = 1080\text{mA}$ $t_p = 50^\circ\text{C}$
	3500	7975	8620	-		
	4000	8280	8950	-		
	5000	8085	8740	-		
Luminous Efficacy	3000	163	176	-	lm/W	
	3500	168	181	-		
	4000	174	188	-		
	5000	170	184	-		
Color Rendering Index (Ra)	-	80			-	-
Operating Current ( $I_f$ )	-		1080		mA	-
Operating Voltage ( $V_f$ )	-	40.7	44.0	47.6	Vdc	$I_f = 1080\text{mA}$ $t_p = 50^\circ\text{C}$
Power Consumption	-	44.0	47.5	51.4	W	$t_p = 50^\circ\text{C}$

#### Notes:

- $t_p$  : temperature at which performance is specified; measured at "Tc point".
- Samsung maintains a measurement tolerance of : Luminous flux:  $\pm 7\%$ , CRI:  $\pm 3.0$ , Voltage:  $\pm 0.3\text{ V}$ , Power Consumption:  $\pm 0.3\text{W}$

## c) Color Coordinate

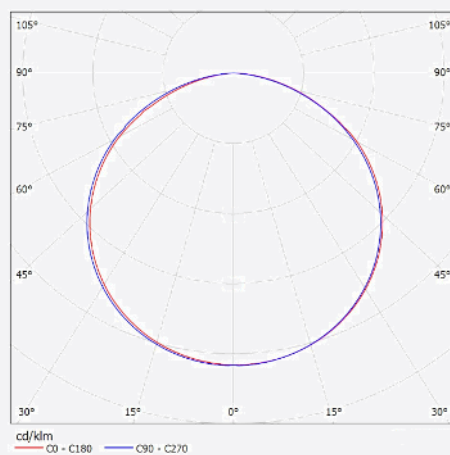
Model Code	Nom. CCT (K)	CIE 1931 Chromaticity Coordinates				Remark	
SI-B8V481B20US	3000	CIE x	0.4265	0.4387	0.4462	0.4335	I <sub>F</sub> = 1080mA t <sub>p</sub> = 25 °C
		CIE y	0.3918	0.3960	0.4113	0.4068	
		Center	0.4362		0.4015		
SI-B8U481B20US	3500	CIE x	0.4002	0.4131	0.4197	0.4064	
		CIE y	0.3793	0.3855	0.4021	0.3955	
		Center	0.4098		0.3906		
SI-B8T481B20US	4000	CIE x	0.3724	0.3853	0.3898	0.3764	
		CIE y	0.3668	0.3746	0.3900	0.3818	
		Center	0.3810		0.3783		
SI-B8R481B20US	5000	CIE x	0.3415	0.3425	0.3532	0.3519	
		CIE y	0.3443	0.3570	0.3655	0.3526	
		Center	0.3473		0.3548		

**Note:**

Samsung maintains a measurement tolerance of CIE\_x / CIE\_y ± 0.005

## d) Light Distribution

Item	Unit	Nominal	Tolerance	Remark
Beam Angle (FWHM)	°(degree)	118	± 5	



## e) Temperature Characteristics

Item	Nominal( $t_p$ )*	Life**	Max( $t_c$ )***	Unit
Temperature	50	80	90	°C

### Notes:

- \* Temperature used to specify performance of the module ( $t_p$ ).
  - \*\* Rated maximum performance temperature at which lifetime is specified.
  - \*\*\* Rated maximum temperature, highest permissible temperature to avoid safety risk ( $t_c$ ).
- All temperatures are measured at the designated "Tc point" as indicated on the module. (See page 6)

## f) Thermal Measurement

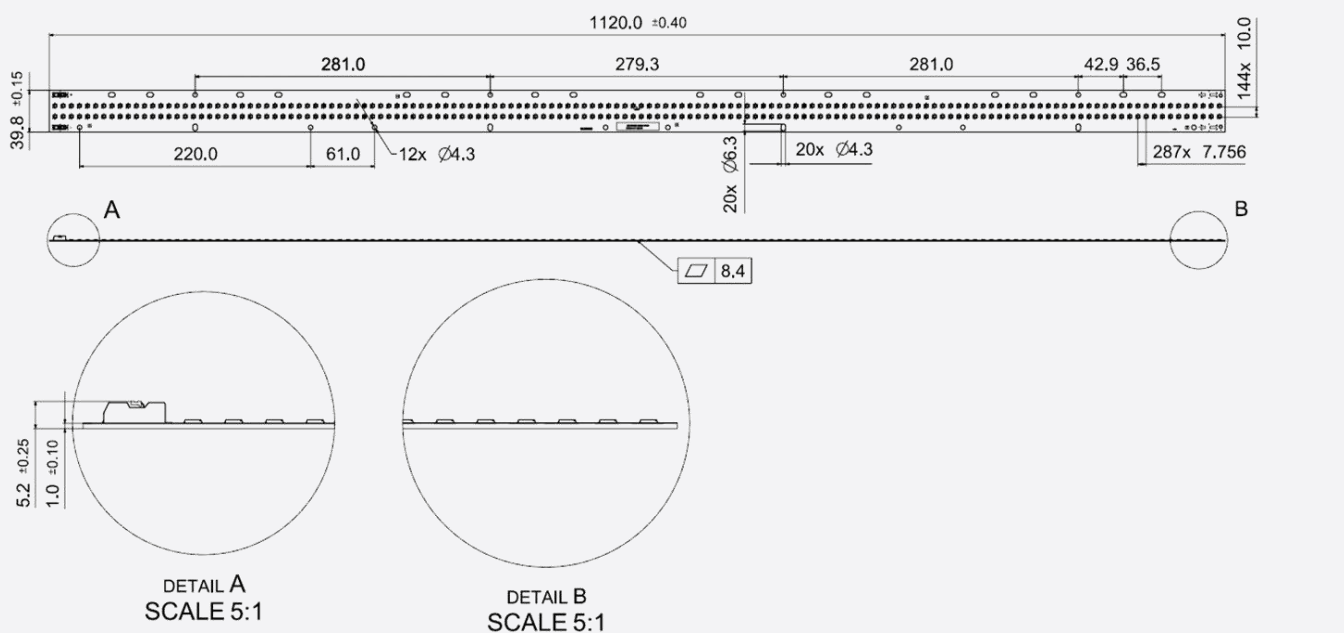
Performance temperatures are measured on "Tc point" as indicated on the module.





### 3. Structure and Assembly

#### a) Appearance & Dimension



Dimension	Specification	Tolerance	Unit
Module Length	1120.0	±0.4	mm
Module Width	39.8	±0.15	mm
Module Height	5.2	±0.25	mm
PCB Thickness	1.0	±0.1	mm
Module Weight	98.4	±4.92	g

#### b) Structure

Item	Specification
LED	LM281B Plus Middle Power LED
PCB	Material : copper, solder mask, epoxy
Connector	Reworkable poke-in connector type
Wire	24~18 AWG ; terminal strip length of 7.5~8.5 mm (Appendix 1)

#### c) Schematic Circuit

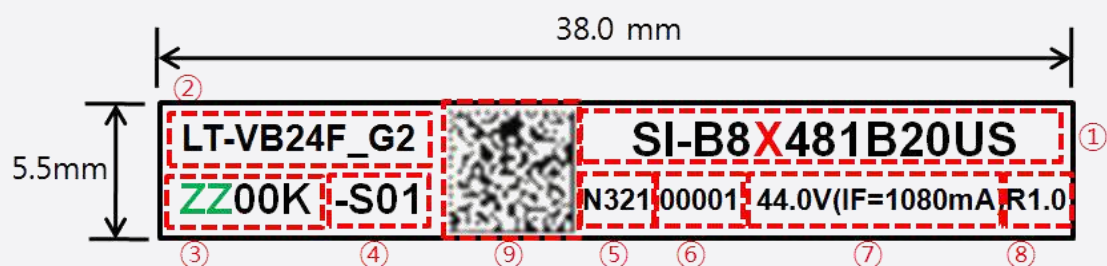
- 16S x 18P

## 4. Certification and Declaration

Item	Compliant to	Remark
Declaration	RoHS	Hazardous Substance & Material

## 5. Label Structure

### a) Module Label



Number	Item	Remark
①	Model code	Refer to page 3 X = V, U, T, R
②	Product name	-
③	Color temperature	ZZ = 30, 35, 40, 50
④	LED maker & Bin rank	-S (Samsung) 00~ZZ
⑤	SMT date	N321 (2013-March-21th)
⑥	Serial No.	00001~99999; Setting "00001" every working day
⑦	Voltage (IF).	
⑧	Product Revision	
⑨	QR Code	SI-B8X481B20US_N321100001ZZ00K-S01

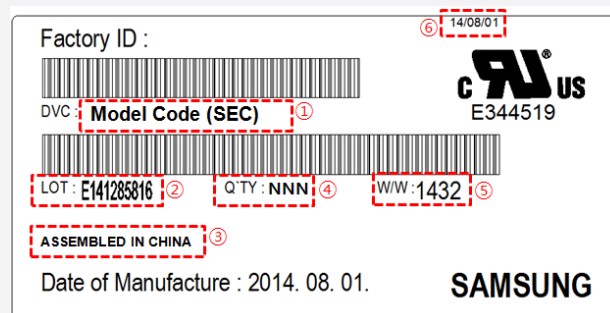


## b) Tray &amp; MBB Bag Label



Number	Item	Remark
①	Model Code	Refer to page 3
②	LOT ID	
③	Quantity	Refer to page 11
④	Date of production	
⑤	Date of Issue	
⑥	Place of origin	

## c) Box Label



Number	Item	Remark
①	Model Code	Refer to page 3
②	LOT ID	
③	Place of origin	
④	Quantity	Refer to page 11
⑤	Describe production week	
⑥	Date of Issue	

## 6. Packing Structure

Product	Packing	Quantity (modules)	Dimension (mm)		
			Length	Width	Height
LT-VB24F_G2	Tray	12 ea	1180	310	16.8
	Outer Box	96 ea	1185	315	135
	Pallet	1440 ea	1200	1000	130

## 7. Precautions in Handling & Use

A. The LED Lighting Modules for white light are devices which are materialized by combining white LEDs.

The color of white light can differ a little unusually to diffuser plate(sign-board panel).

Also when the LEDs are illuminating, operating current should be decided after considering the ambient maximum temperature.

### B. Handling

To prevent the LED Lighting Modules from making any defectives, please handle the LED Lighting Modules with care as follows.

- (1) Don't drop the unit and don't give the unit any shocks.
- (2) Don't bend the PCB and don't touch the LED Resin.
- (3) Don't storage the Module in a dusty place or room.
- (4) Don't take the product apart.
- (5) Don't touch the LED and also PCB and other circuit parts of Module with your naked fingers or sharpness things.
- (6) Take care so that do not pull wire with hand in case of carries or moves LED Lighting Modules.

### C. Cleaning

The LED Lighting Modules should not be used in any type of fluid such as water, oil, organic solvent, etc.

It is recommended that IPA (Isopropyl Alcohol) be used as a solvent for cleaning the LED Lighting Modules.

When using other solvents, it should be confirmed beforehand whether the solvents will dissolve the package and the resin or not. Freon solvents should not be used to clean the LEDs because of worldwide regulations. Do not clean the LED Lighting Modules by the ultrasonic.

Before cleaning, a pre-test should be done to confirm whether any damage to the LED Lighting Modules will occur.

### D. Static Electricity

Static electricity or surge voltage damages the LED Lighting Modules. Please keep the working process anti-static electricity condition to prevent the Lighting from destroying, as following.

- (1) Anyone who handles the unit should be well grounded.(earth ring or anti-static glove)
- (2) Anyone who handles the unit should wear anti-electrostatic working clothes.
- (3) All kinds of device and instruments, such as working table, measuring instruments and assembly jigs in your production lines should be well grounded.

### E. Storage

The LED Lighting Modules must be stored to insert a package of a moisture absorbent material(silica gel) in a box.

### F. Others

If over voltage which exceeds the absolute maximum rating is applied to LED Lighting Modules.

It will cause damage Circuits(that LED is included) and result in destruction.

Do not directly look into lighted LED with naked eyes.

Please use this product within 5 months, which is kept in its original packaging unopened when stocked

Please be careful when taking a product out from packaging.

# Legal and additional information.

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# Appendix

## 1. Applicable Solid Wires

a) Applicable solid wires only

Wire Range AWG NO.	Number of Conductors / Diameter of a conductors (NO. / mm)	Insulation Diameter (mm)	Conductor Type
24	1 / 0.51	1.35	Solid
22	1 / 0.64	1.48	
20	1 / 0.81	1.65	
18	1 / 1.02	1.86	

※ outside insulation diameter  $\Phi$ 2.1mm Max.

b) Wire strip length



[ Conductor : Bear Copper ]

